

***Afroarabiella* gen. nov. – a new genus of Cossidae (Lepidoptera) from the African and Arabian Peninsula**

by

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Abstract: *Afroarabiella* gen. nov. (Type species: *Cossus tahamae* WILTSHIRE, 1949) is described. New combinations: *Afroarabiella fanti* (HAMPSON, 1910) **comb. nov.**, *Afroarabiella buchanani* (ROTHSCHILD, 1921) **comb. nov.**, *Afroarabiella ochracea* (GAEDE, 1930) **comb. nov.**, *Afroarabiella tahamae* (WILTSHIRE, 1949) **comb. nov.** are instated. *Meyoarabiella* subgen. nov. and three species: *Afroarabiella meyi* spec. nov., *Afroarabiella politzari* spec. nov. and *Afroarabiella ukambani* spec. nov. are described.

Introductions: While examining specimens of the Asian Cossidae I encountered *Cossus tahamae* WILTSHIRE, 1949 from Arabia, the peculiarities of which did not allow its attribution to any of the known Palaearctic carpenter moth genera (SCHOORL, 1990), nor to any African or South-East Asian genera.

Material and methods: At the same time, when analyzing the types of African Cossidae preserved in the collection of the British Natural History Museum (BMNH), I found six species which morphologically very much resembled *C. tahamae* WILTSHIRE, 1949. These were *Cossus fanti* HAMPSON, 1910, *C. buchanani* ROTHSCHILD, 1921, *Coryphodema ochracea* GAEDE, 1930 and three hitherto undescribed species.

Results: There is no doubt that these four species represent a genus new for science which is described below.

***Afroarabiella* gen. nov.**

Type species: *Cossus tahamae* WILTSHIRE, 1949.

Description: Wing expanse 17–29 mm. Head somewhat narrower than the thorax. Antenna bipectinate. Thorax and abdomen densely covered with hairs. Forewing very broad, with a widely rounded apex, and a more or less noticeable wavy pattern composed of transverse streaks. Hindwing plain.

♂ genitalia: Uncus very long with a more or less pointed apex, much narrower than the tegumen. Tegumen rather robust. The gnathos arms are very thick and form a small poorly structured gnathos. Valva evenly sclerotised, oval-shaped with even margins. Arms of transtilla short, not robust, moderately curved with pointed apices. Juxta massive, with very large leaf-like lateral processes. Saccus wide but very short, with little protruding behind the valva. Aedeagus short, thick, slightly curved, with a very broad base which gradually tapers to the apex. Vesica opening occupies about half the length of the aedeagus from a dorso-apical position. Vesica with a long thin cornutus.

Diagnosis: The new genus represents a very peculiar group in the subfamily Cossinae LEACH, [1815] 1830 (the type genus *Cossus* FABRICIUS, 1793). Of a very small size, the general structure of the ♂ genitalia (a processed uncus, a stout juxta, a valva without subdivision into a sclerotised and membranous part, and a unique aedeagus shape) represent a set of synapomorphies strongly differentiating the new genus from all other hitherto known Cossinae.

Distribution (fig. 1): Representatives of the new genus are reliably known only by their type specimens, so it is difficult to make a definitive statement on its general range. However, at present it may be concluded that the range of the new genus is the vast African territory from the Sahara Desert in the north to Southern Africa in the south, and the western and southern Arabia (south of the Cancer tropic).

Catalogue of the genus *Afroarabiella* gen. nov.

Afroarabiella fanti (HAMPSON, 1910) **comb. nov.** (col. pl. 27: 1, fig. 2-3)

Cossus fanti HAMPSON, 1910, Ann. Mag. Nat. Hist. (8) 6: 133. Holotype ♂, by the first designation: Ashanti, Obuassi [Ghana, Ashanti distr., Obuassi], Genitalia slide BM-Coss39 (BMNH) [examined].

Afroarabiella buchanani (ROTHSCHILD, 1921) **comb. nov.** (col. pl. 27: 2, figs 4-5)

Cossus buchanani ROTHSCCHILD, 1921, Novit. Zool. 28: 218. Holotype ♂, by the first designation: Baguezan Mts., Asben [Niger Republic, Sahel, Air Mountains, Baguezan Mt.], Genitalia slide BM-Coss237 (BMNH) [examined].

Afroarabiella ochracea (GAEDE, 1930) **comb. nov.** (col. pl. 27: 3, figs 6-7)

Coryphodema ochracea GAEDE, 1930, Gross-Schmett. Erde 14: 543. Holotype ♂, by the first designation: Chaïne Luitpold [Kinshasa, Congo], Genitalia slide BM-Coss209 (BMNH) [examined].

Systematic notes: The genus *Coryphodema* FELDER, 1874 was established for the South African species *Coryphodema capensis* FELDER, 1874, which differs considerably from the representatives of the new genus even externally (col. pl. 27: 4). Its ♂ genitalia also differ strongly: The uncus is much shorter, the valva costal margin bears a crest, the valva apex is membranous, the aedeagus is straight and longer, and the vesica is without cornuti.

Afroarabiella tahamae (WILTSHIRE, 1949) **comb. nov.** (col. pl. 27: 5-6; figs 8-9)

Cossus tahamae WILTSHIRE, 1949, Bull. Soc. Fouand d'Ent. 33: 371, pl.: fig. 19. Holotype ♂, by first designation: Buraiman, coastal plain (Ar.: Tahama), near Jedda, Saudi Arabia, Genitalia slide BM-Coss232 (BMNH) [examined].

Systematic notes: Originally this species was described within the genus *Cossus* FABRICIUS, 1793 (the type species *Phalaena-Noctua cossus* LINNAEUS, 1758) but later was recombined by DANIEL (1965) into the genus *Catopta* STAUDINGER, 1899 (the type species *Catopta albimacula* STAUDINGER, 1899). Representatives of the true *Catopta* differ from all other members of the family by substantial apomorphic characters such as the reduction of the transtilla arms and the presence of small triangular cornuti.

New material: ♂, Jemen, Prov. Al Hudaydah, 13°53'28"N, 43°23'05"E, Tihama, 10 km wsw Hays, 50m, sanddunes, 25.IV.1998, leg. A. BISCHOF, J. BITTERMANN, M. FIBIGER, H. HACKER, H. PEKS, H.-P. SHREIER (coll. H. HACKER); ♂, Jemen, Prov. Hadramaut, 14°47'26"N, 49°15'10"E,

25 km nne Al Mukalla, Al Ain, 20 km nnw Ar, Rayyan, 100m, 1.V.1998, leg. A. BISCHOF, J. BITTERMANN, M. FIBIGER, H. HACKER, H. PEKS, H.-P. SHREIER (coll. H. HACKER).

Afroarabiella ukambani **spec. nov.** (col. pl. 27: 7–8; figs 10–11)

Material: Holotype ♂, Kenya, Kibwezi, 12.-20.08.1993, leg. Dr. POLITZAR (ZSSM). Paratypes (all ZSSM): ♂, Kenya, Selengai, 19.11.1972, leg. Dr. POLITZAR; ♂, Kenya, South Ukambani, 6.5.96, leg. Dr. POLITZAR; 2 ♂♂, Somalia m., Coonole Fluss, 7.1.98, leg. Dr. Politzar; ♂, Somalia m., lake Boddona, 1.2.89, leg. Dr. POLITZAR.

Description: Length of the forewing 11–12 mm. Forewing with a widely rounded apex. Basal area before the postdiscal zone dark, with small light dots, but light grey from the postdiscal region towards the external margin. Forewings with fine transversal wavy bands. There is a light brown spot within an indistinct margin situated in a cubital field postdiscally. Hindwing whitish grey with a fine undulating pattern on the periphery. Cilia chequered in both wings.

♂ genitalia: Uncus long, slender, tegument compact. Gnathos robust, with weak adhesion; its branches thick. Valvae curved in the medial part. Processes of transtilla slender, curved, and hook-shaped. Juxta with long lateral processes. Saccus compact, semiovoid. Aedeagus two-thirds the length of the valva. Vesica with needle-shaped cornutus.

Diagnosis: Closest to *Afroarabiella ochracea* (GAEDE, 1930) but differs by the more prominent wavy patterning, the longer aedeagus and uncus, and the more robust processes of the transtilla.

Afroarabiella politzari **spec. nov.** (col. pl. 27: 9; figs 12–13)

Material: Holotype ♂, Kenya, Kaputir, 21.08.1973, leg. Dr. POLITZAR (ZSSM); paratype, ♂, same data (ZSSM).

Description: The length of the forewing 9,5 mm. Forewing grey with a very fine reticulated pattern of wavy lines. Discal field with vague brown zones. Hindwing light grey with a suffusion of grey scales and with a weakly expressed undulating pattern. Cilia chequered in both wings.

♂ genitalia: Uncus long, slender, tegument robust. Gnathos small, with weak adhesion; its branches thick. Valvae curved in the medial part on the lower margin. Processes of transtilla slender, curved, hook-shaped. Juxta with long and broad lateral processes. Saccus compact. Aedeagus two-thirds the length of the valva. Vesica with needle-shaped cornutus.

Etymology. This new species is named after a well known entomologist and collector of African Lepidoptera, Dr. HEYNEZ POLITZAR, who was the first to collect it.

Subgenus *Meyoarabiella* **subgen. nov.**

Type species: *Afroarabiella meyi* **spec. nov.**

Description: Small-sized moths. Antenna bipectinated. Forewing broad with a pointed apex, reticulated patterning with an interleaving of darker and lighter elements, and wavy bands. Hind wing a plain grey.

♂ genitalia: Uncus elongated, tegument compact. Gnathos robust, covered with small chaetae; its branches short. Valvae elongated, with rounded tips and a somewhat concave costal margin. Processes of transtilla broad and short, with slightly curved apex finely serrated. Juxta with broad ovoid lateral processes. Saccus very small. Aedeagus thick, short, half the length of as the valva; opening of vesica dorso-apical. Vesica with a comparatively large wedge-shaped cornutus.

Diagnosis. The subgenus differs from the nominate one by the following characters:

1. Forewing with a pointed apex.
2. Processes of transtilla more robust.
3. Valva of a simple shape.
4. Valvae longer.

Afroarabiella (*Meyoarabiella*) *mei* **spec. nov.** (col. pl. 27: 10; figs 14–15)

Material: Holotype ♂, RSA, Richtersveld Numees, Helskloof Gate, 9.-12.10.2001, leg. W. MEY (MHUB).

Description: Length of the forewing 12 mm. Forewing broad with a pointed apex, grey with a wavy pattern in fine transverse bands. There are obscure brown spots with vague margins in the central part of the wing; postdiscal field distinctly lighter, with small dark stripes. Hindwing grey and without patterning. Cilia chequered in both wings.

♂ genitalia: See description of *Meyoarabiella* **subgen. nov.** above.

Etymology: This new species is named after a well known entomologist, Dr. WOLFRAM MEY (Berlin), who was the first to collect it.

Discussion: The above information increases the proportion of African genera in the Cossidae fauna on the Arabian Peninsula. 13 genera of Cossidae are currently known from Arabia (HACKER, 1999; YAKOVLEV, in litt.), of which three - *Afroarabiella* **gen. nov.**, *Afrikanetz* YAKOVLEV, in litt. (the type species *Afrikanetz inkubu* YAKOVLEV, in litt. and *Aethalopteryx* SCHOORL, 1990 (the type species *Phragmatoecia* (sic!) *atireta* HAMPSON, 1910) - have a tropical African origin. Thus, representatives of the genus *Afrikanetz* YAKOVLEV, beyond Arabia, occur in Africa south of the Congo, while those of *Aethalopteryx* SCHOORL are found south down to Pretoria. The genus *Azygophleps* HAMPSON, 1892 (the type species *Hepialis scalaris* FABRICIUS, 1775) enjoys an even wider Palaeotropical distribution. Most of its representatives are African endemics but some occur in the southernmost part of Iran, in India, Shri-Lanka, southern parts of Bangladesh, China, and in Pakistan. The northernmost localities for *Azygophleps* are situated in central Turkey.

The genus *Holcocerus* STAUDINGER, 1884 [the type species *Cossus* (*Holcocerus*) *nobilis* STAUDINGER, 1884] has a much wider range (YAKOVLEV, 2006). Perhaps this is the only genus of Cossidae present in Arabia which has a vast range (east to Central Mongolia). The other eight genera have Mediterranean ranges, as found in Sahara, southern Europe and the near East.

These data confirm the opinion of most researchers that in zoogeographical respects the Arabian Peninsula is a buffer zone between the Palaearctic and Palaeotropics.

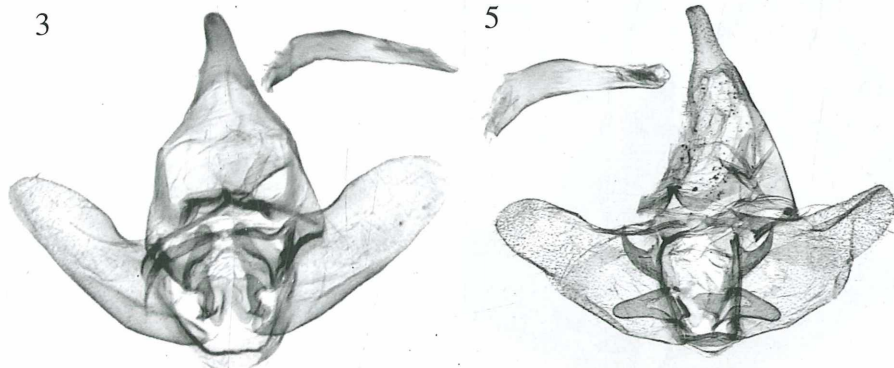
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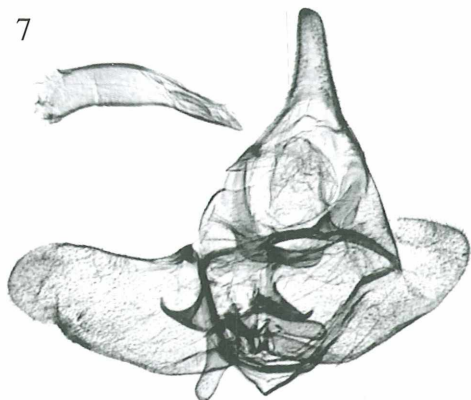
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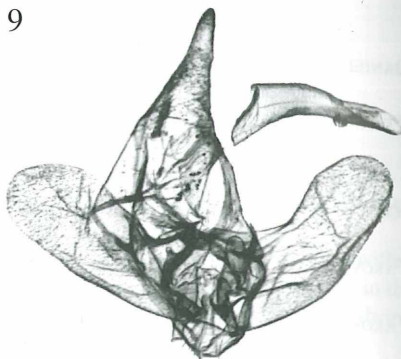


3. Genitalia of *Afroarabiella fanti* (HAMPSON, 1910)
5. Genitalia of *Afroarabiella buchanani* (ROTHSCHILD, 1921)

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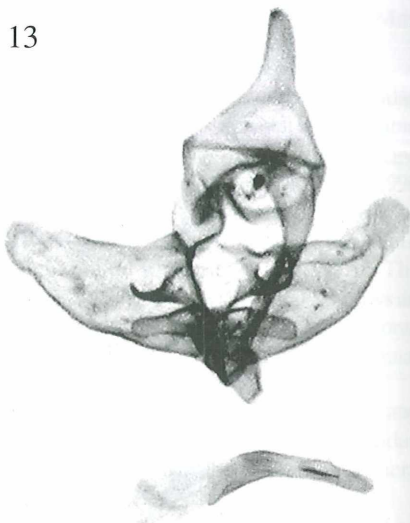
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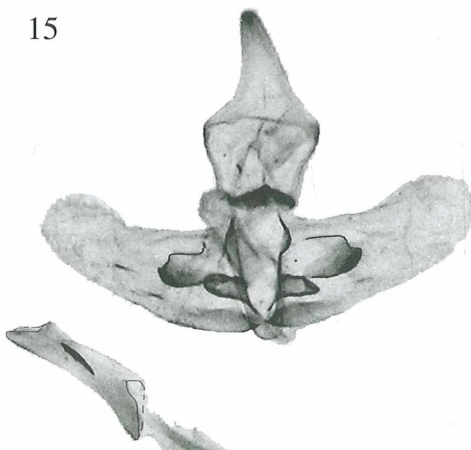
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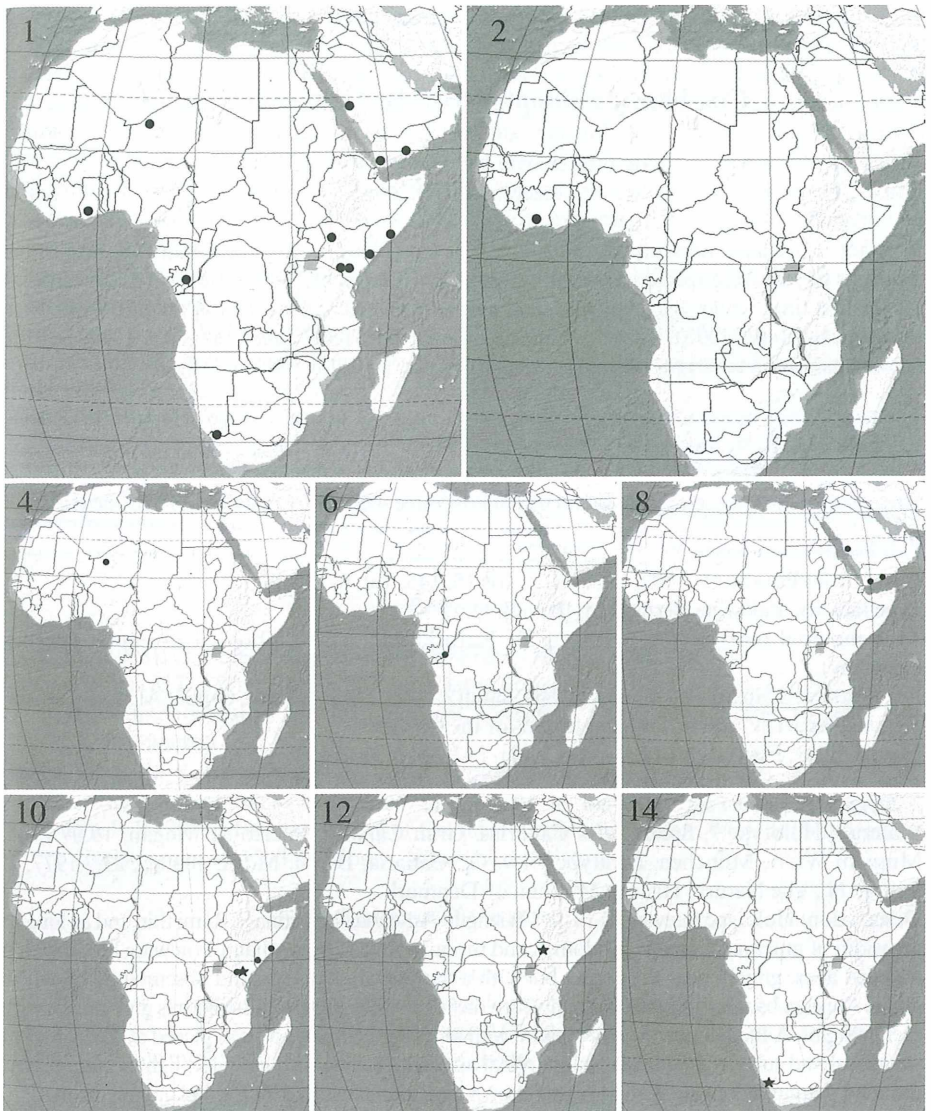
7. Genitalia of *Afroarabiella ochracea* (GAEDE, 1930)

9. Genitalia of *Afroarabiella tahamae* (WILTSHIRE, 1949)

11. Genitalia of *Afroarabiella ukambani* spec. nov.

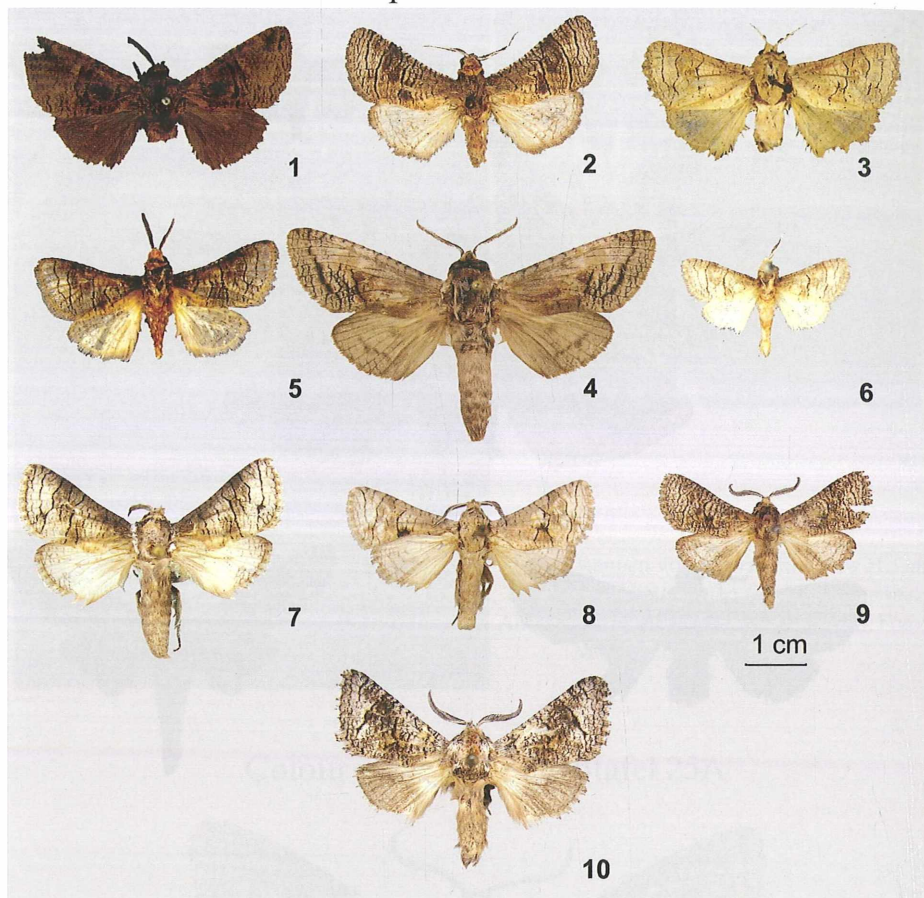
13. Genitalia of *Afroarabiella politzari* spec. nov.

15. Genitalia of *Afroarabiella* (*Meyoarabiella*) *meyi* spec. nov.



1. Distribution of the species of the genus *Afroarabiella* **gen. nov.**
2. Distribution of *Afroarabiella fanti* (HAMPSON, 1910)
4. Distribution of *Afroarabiella buehanani* (ROTHSCHILD, 1921)
6. Distribution of *Afroarabiella ochracea* (GAEDE, 1930)
8. Distribution of *Afroarabiella tahamae* (WILTSHIRE, 1949)
10. Distribution of *Afroarabiella ukambani* **spec. nov.**
12. Distribution of *Afroarabiella politzari* **spec. nov.**
14. Distribution of *Afroarabiella* (*Meyoarabiella*) *mevi* **spec. nov.**

Colour plate 27/ Farbtafel 27



1. *Afroarabiella fanti* (HAMPSON, 1910), holotype ♂.
2. *Afroarabiella buchanani* (ROTHSCHILD, 1921), holotype ♂.
3. *Afroarabiella ochracea* (GAEDE, 1930).
4. *Coryphodema capensis* FELDER, 1874, ♂, Südafrika, leg. DE FREINA (MWM).
5. *Afroarabiella tahamae* (WILTSHIRE, 1949), holotype ♂.
6. *Afroarabiella tahamae* (WILTSHIRE, 1949), paratype ♂.
7. *Afroarabiella ukambani* **spec. nov.**, holotype ♂.
8. *Afroarabiella ukambani* **spec. nov.**, paratype ♂ from Somali.
9. *Afroarabiella politzari* **spec. nov.**, holotype ♂.
10. *Afroarabiella* (*Meyoarabiella*) *mevi* **spec. nov.**, holotype ♂.

Colour plate 28/ Farbtafel 28

Legend to colour plate 28 see p. 411

